CLAIMS

1. Communication management method for a random access communication network, characterized in that it consists in:

- dividing time intervals (IT) into time slots (T) each associated with an access time slot during which a terminal (UE) can send an access request to the network, and of selected width greater than or equal to the duration of an access request and then divide those time intervals (IT) into sub-intervals (SI) including at least two consecutive time slots and prohibit the terminals from sending access requests during at least one of the access time slots associated with the time slots (T) of each sub-interval at the same time as authorizing them to do so during non-prohibited access time slots,
- defining in each sub-interval (SI) a number, at least equal to the number of time slots (T) that it contains, of processing time windows (F) offset in time and of width substantially equal to that of a time slot (T), and
- deducing from the window (F) to which a received access request belongs at least one access delay of the requesting terminal (UE) relative to a reference and then sending an acknowledgement message to that requesting terminal (UE) at a moment selected as a function of that access delay so that it can receive it in a predefined acknowledgement time interval.

2. Method according to claim 1, characterized in that a reception time of a message transmitted by a terminal (UE) consecutively to the reception of an acknowledgement message sent in response to an access request associated with said message is deduced from said access delay.

3. Method according to either claim 1 or claim 2, characterized in that said access delay is stored in corresponding relationship to an identifier of the requesting terminal (UE) so as to be able to time the reception of each message sent by said terminal (UE).

4. Method according to any one of claims 1 to 3, characterized in that said number of time slots (T) of a sub-interval (SI) is selected so that it corresponds to the maximum spread of the access delays of the terminals (UE) in a coverage area (ZC) of said network.

5. Method according to any one of claims 1 to 4, characterized in that said number of time slots (T) of a sub-interval (SI) is equal to three.

6. Method according to claim 5, characterized in that the use of two

consecutive time slots (TI) of three time slots in each sub-interval (SI) is prohibited.

7. Method according to any one of claims 1 to 6, characterized in that at least certain of said processing time windows (F) have a common limit.

8. Method according to any one of claims 1 to 7, characterized in that certain of said processing time windows (F) have a time overlap.

9. Method according to claim 8, characterized in that said time overlap is substantially equal to 50%.

10. Method according to any one of claims 1 to 9, characterized in that said time interval (IT) is equal to n times the duration of a radio frame constituting said message associated with an access request, n being greater than or equal to 1.

11. Method according to any one of claims 1 to 10, characterized in that signals representing said access requests are received in parallel over each of the processing time windows (F) of the sub-intervals (SI) so as to deduce in parallel respective windows (F) to which said received signals belong from the access delays of the requesting terminals (UE) relative to said reference, after which acknowledgement messages are sent to said requesting terminals (UE) at times selected as a function of their respective access delays, so that they are able to receive them in said predefined acknowledgement time interval.

12. Method according to any one of claims 1 to 10, characterized in that signals representing said access requests are received throughout the duration of each sub-interval (SI) and an access delay is associated with each access request received during said sub-interval (SI) as a function of the processing time window (F) during which it was received, after which acknowledgement messages are sent to said requesting terminals (UE) at times selected as a function of their respective access times so that they can receive them in said pre defined acknowledgement time interval.

13. Communication management device (D) for a base station (SB) of a random access communication network, characterized in that it comprises processing means (MT) adapted to:

- divide time intervals into time slots (T) each associated with an access time slot during which a terminal (UE) is able to send an access request to the network and of selected width greater than or equal to the duration of an

access request,

- divide said time intervals (IT) into sub-intervals (SI) including at least two consecutive time slots (T),

- designate in each sub-interval (SI) at least one prohibited time slot (TI) associated with an access time slot during which the terminals (UE) are prohibited from sending their access requests to the network,

- define in each sub-interval (SI) a number, at least equal to the number of time slots (T) that it contains, of processing time windows (F) offset in time and of width substantially equal to that of a time slot (T), and

- in the event of reception of an access request sent by a requesting terminal (UE), deduce from the window (F) to which said access request belongs at least one access delay of the requesting terminal (UE) relative to a reference and then to determine from said access delay a time of sending an acknowledgement message to said requesting terminal (UE) so that it is able to receive it in a predefined acknowledgement time slot.

14. Device according to claim 13, characterized in that said processing means (MT) are adapted to determine from said access delay a time of receiving a message sent by a terminal (UE) consecutively to the receipt of an acknowledgement message sent in response to an access request associated with said message.

15. Device according to either claim 13 or claim 14, characterized in that it comprises a memory (M) adapted, on the instructions of said processing means (MT), to store each deduced access delay in corresponding relationship to an identifier of the requesting terminal (UE) and said processing means (MT) are adapted to instruct the receive timing of said base station (SB) to be locked to each message sent by a terminal (UE) as a function of the access delay associated with its identifier in said memory (M).

16. Device according to any one of claims 13 to 15, characterized in that said number of time slots (T) of a sub-interval (SI) is selected so that it corresponds to the maximum spread of the access delays of the terminals (UE) situated in a coverage area (ZC) of said network.

17. Device according to any one of claims 13 to 16, characterized in that said number of time slots (T) of a sub-interval (SI) is equal to three.

18. Device according to claim 17, characterized in that said processing means (MT) are adapted to designate on command two consecutive

prohibited access time slots (TI) of three time slots in each sub-interval (SI).

19. Device according to any one of claims 13 to 18, characterized in that said processing means (MT) are adapted to define at least certain of said processing time windows (F) so that pairs of them have a common limit.

20. Device according to any one of claims 13 to 19, characterized in that said processing means (MT) are adapted to define at least certain of said processing time windows (F) so that they have a time overlap.

21. Device according to claim 20, characterized in that said time overlap is substantially equal to 50%.

22. Device according to any one of claims 13 to 21, characterized in that said time interval (IT) is equal to n times the duration of a radio frame constituting said message associated with an access request, n being greater than or equal to one.

23. Device according to any one of claims 13 to 22, characterized in that said processing means (MT) are adapted to receive signals representing said access requests in parallel over each of the processing time windows (F) of the sub-intervals (SI) so as to deduce in parallel respective windows (F) to which said received signals belong from the access delays of the requesting terminals (UE) relative to said reference, and then to command the sending of acknowledgement messages to said requesting terminals (UE) at times selected as a function of their respective access delays, so that they are able to receive them in said predefined acknowledgement time interval.

24. Device according to any one of claims 13 to 22, characterized in that said processing means (MT) are adapted to receive signals representing said access requests throughout the duration of each sub-interval (SI) and then to associate an access delay with each access request received during said sub-interval (SI) as a function of the processing time window (F) during which it was received, and then to command the sending of acknowledgement messages to said requesting terminals (UE) at times selected as a function of their respective access delays so that they can receive them in said predefined acknowledgement time interval.

25. Base station (SB) for a random access communication network, characterized in that it comprises at least one communication management device (D) according to any one of claims 13 to 24.

26. Use of the communication management method, the communication

management device (D) and the base station (SB) according to any one of the preceding claims for 3G type communication terminal communication management.

27. Use according to claim 26, characterized in that said 3G communication terminals are UMTS networks operating in frequency duplex mode.

28. Use according to either claim 26 or claim 27, characterized in that said communications take place in satellite type random access communication networks.

29. Use according to either claim 26 or claim 27, characterized in that said communications take place in random access communication networks with radio relay stations coupled to a base station.